# APPENDIX 1
# TRAFFIC ANALYSIS

# 2020 Traffic Forecasts

Year 2020 p.m. peak hour traffic forecasts were prepared for the couplet alternative using the City of Portland's recently updated EMME/2 traffic forecasting model. To represent the couplet alternative, the model's street network was modified by adding Couch Street, eliminating all left turn prohibitions along Burnside, and reducing lane capacity to 700 vehicles per hour per lane to represent the proposed 10-foot lanes.

The primary finding derived from review of the traffic forecasts is that the Prefered Alternative has very little impact on Burnside–Couch and downtown volumes. The volumes on Burnside and Couch with the Prefered Alternative do not differ significantly from the volumes that would use Burnside under "baseline" conditions (i.e., without the Burnside Plan improvements).

# Operational Analysis of Prefered Alternative

The lane configurations and traffic controls comprised by the Prefered Alternative, the p.m. peak hour traffic volume estimates for each, and the operational analysis results (intersection level of service) are compiled in Figures 4-12:

| | |
|---|---|
| Figures 4-6: | lane configurations and traffic controls |
| Figure 7-9: | p.m. peak hour traffic volumes |
| Figure 10–12: | p.m. peak hour intersection LOS |

Traffic operations on Burnside were analyzed by determining the "Level of Service" (LOS) at each intersection. As described in the *Alternatives Analysis Report*, LOS is defined in terms of 'delay.' The estimated/computed delay is used to represent a number of factors, including driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, LOS criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. There are six levels of service, ranging from LOS A, where traffic is relatively free flowing, to LOS F, where the street system is totally saturated with traffic and movement is very difficult.

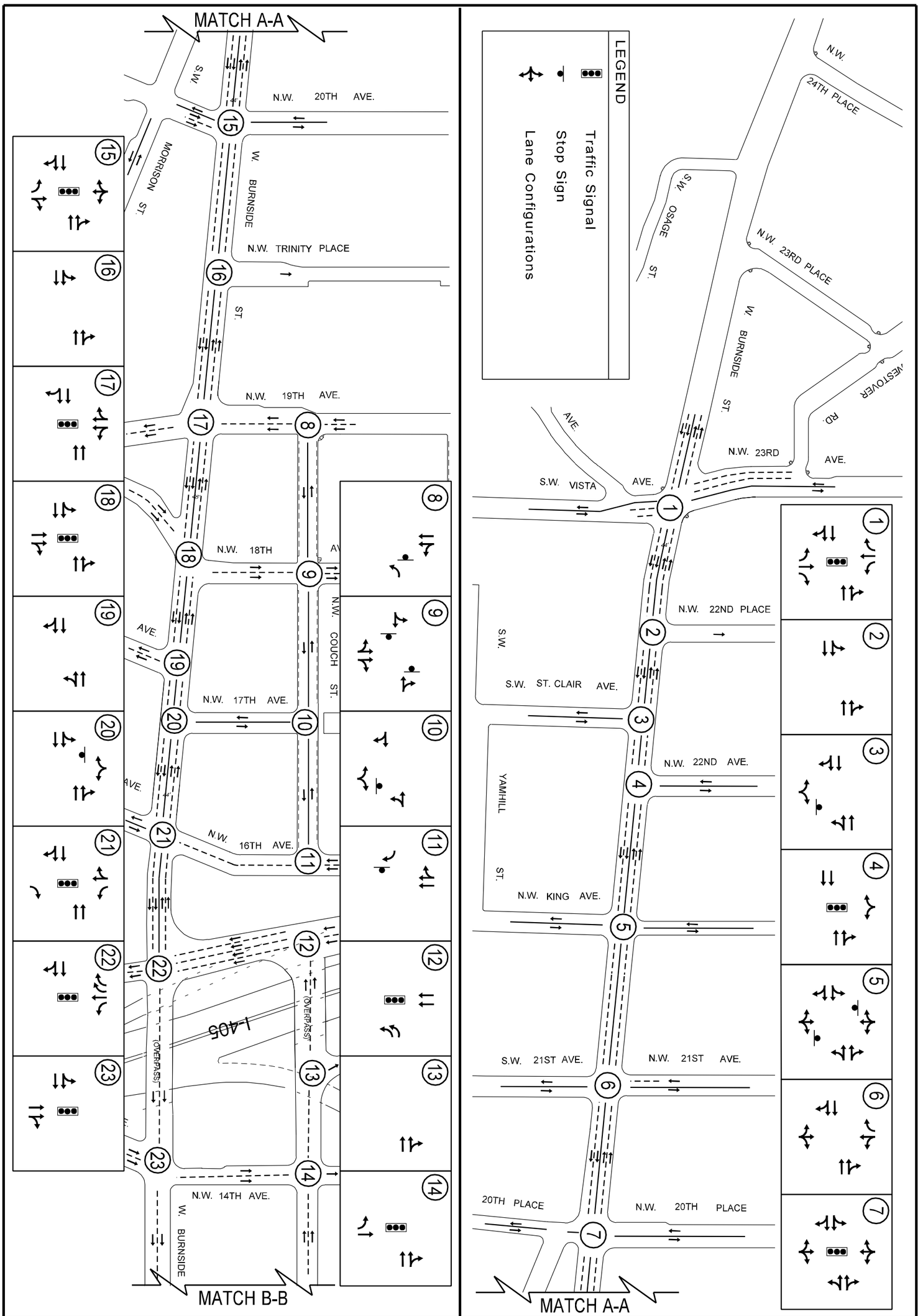
The results of the Burnside traffic operations analysis are compiled in **Tables 1a** and **1b**, which include intersection LOS, the estimated average delay (on which LOS is based), and the associated volume:capacity ratio (V/C) for each signalized intersection.

**Table 1a: Level of Service (LOS) at Burnside Intersections P.M. Peak Hour**

| Burnside Intersection | LOS | V/C | Delay |
|---|---|---|---|
| NW 23rd Ave | F | 1.51 | 105.4 |
| NW 22nd Ave | A | 0.52 | 3.5 |
| W 21st Ave | B | 0.70 | 11.2 |
| W 20th Pl. | A | 0.54 | 1.8 |
| W 20th Ave | B | 0.57 | 11.2 |
| W 19th Ave | B | 0.74 | 14.8 |
| W 18th Ave | A | 0.76 | 8.5 |
| W 16th Ave | B | 0.61 | 11.7 |
| W 15th Ave | A | 0.56 | 7.2 |
| W 14th Ave | B | 0.68 | 13.4 |
| W 13th Ave | A | 0.50 | 3.2 |
| W 12th Ave | A | 0.48 | 8.0 |
| W 11th Ave | A | 0.58 | 4.2 |
| W 10th Ave | B | 0.67 | 13.8 |
| W 9th Ave | A | 0.55 | 2.2 |
| W Park Ave | A | 0.56 | 2.7 |
| W 8th Ave | A | 0.55 | 3.0 |
| W Broadway | B | 0.87 | 19.4 |
| W 6th Ave | A | 0.74 | 7.4 |
| W 5th Ave | A | 0.74 | 5.7 |
| W 4th Ave | B | 0.86 | 18.5 |
| W 3rd Ave | A | 0.79 | 9.0 |
| W 2nd Ave | B | 0.83 | 18.8 |
| E 3rd Ave | C | 0.93 | 33.0 |
| E Martin Luther King Jr. Blvd. | A | 0.89 | 6.8 |
| E Grand Ave | B | 0.84 | 15.4 |
| E 6th Ave | B | 0.48 | 10.9 |
| E 7th Ave | B | 0.78 | 12.9 |
| E 8th Ave | A | 0.53 | 3.7 |
| E 9th Ave | A | 0.62 | 2.9 |
| E 10th Ave | A | 0.55 | 2.6 |
| E 11th Ave | A | 0.56 | 1.9 |
| E 12th Ave | C | 0.92 | 22.4 |
| E 14th Ave | B | 0.75 | 11.0 |

## Table 1b: Level of Service (LOS) at Couch Intersections P.M. Peak Hour

| Couch Intersection | LOS | V/C | Delay |
|---|---|---|---|
| NW 15th Ave | B | 0.63 | 17.0 |
| NW 14th Ave | B | 0.80 | 15.1 |
| NW 13th Ave | A | 0.58 | 3.0 |
| NW 12th Ave | A | 0.60 | 3.8 |
| NW 11th Ave | A | 0.63 | 9.9 |
| NW 10th Ave | A | 0.65 | 4.5 |
| NW 9th Ave | A | 0.48 | 5.5 |
| NW Park Ave | A | 0.49 | 1.2 |
| NW 8th Ave | A | 0.53 | 3.8 |
| NW Broadway | C | 0.89 | 28.3 |
| NW 6th Ave | A | 0.53 | 1.8 |
| NW 5th Ave | A | 0.62 | 9.8 |
| NW 4th Ave | A | 0.76 | 4.0 |
| NW 3rd Ave | B | 0.76 | 16.1 |
| NW 2nd Ave | B | 0.85 | 15.3 |
| NE 3rd Ave | B | 0.90 | 19.5 |
| NE MLK Jr. Blvd | C | 0.87 | 23.0 |
| NE Grand Ave | A | 0.78 | 8.4 |
| NE 6th Ave | A | 0.40 | 6.3 |
| NE 7th Ave | A | 0.53 | 9.2 |
| NE 8th Ave | A | 0.29 | 2.7 |
| NE 9th Ave | A | 0.36 | 6.2 |
| NE 10th Ave | A | 0.28 | 2.1 |
| NE 11th Ave | A | 0.25 | 7.3 |
| NE 12th Ave | A | 0.57 | 8.4 |
| NE 14th Ave | A | 0.73 | 8.1 |

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# FIGURE 4:
# ROADWAY CONFIGURATION and TRAFFIC CONTROL - RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

# FIGURE 5:
# ROADWAY CONFIGURATION and TRAFFIC CONTROL - RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

MATCH B-B

MATCH C-C

N.W. 13TH AVE.

N.W. 12TH AVE.

N.W. 11TH AVE.

N.W. 10TH AVE.

N.W. 9TH AVE.

N.W. PARK AVE.

N.W. 8TH

N.W. BROADWAY

N.W. 6TH AVE.

W. BURNSIDE ST.

S.W. 13TH AVE

S.W. OAK ST.

N.W. 5TH AVE.

N.W. 4TH AVE.

N.W. 3RD AVE.

N.W. 2ND AVE.

N.W. 1ST

N.W. FRONT

COUCH ST.

WB I-84

EB I-84

BURNSIDE BRIDGE

S.W. ANKENY ST.

ANKENY

WILLAMETTE

LEGEND

- Traffic Signal
- Stop Sign
- Lane Configurations

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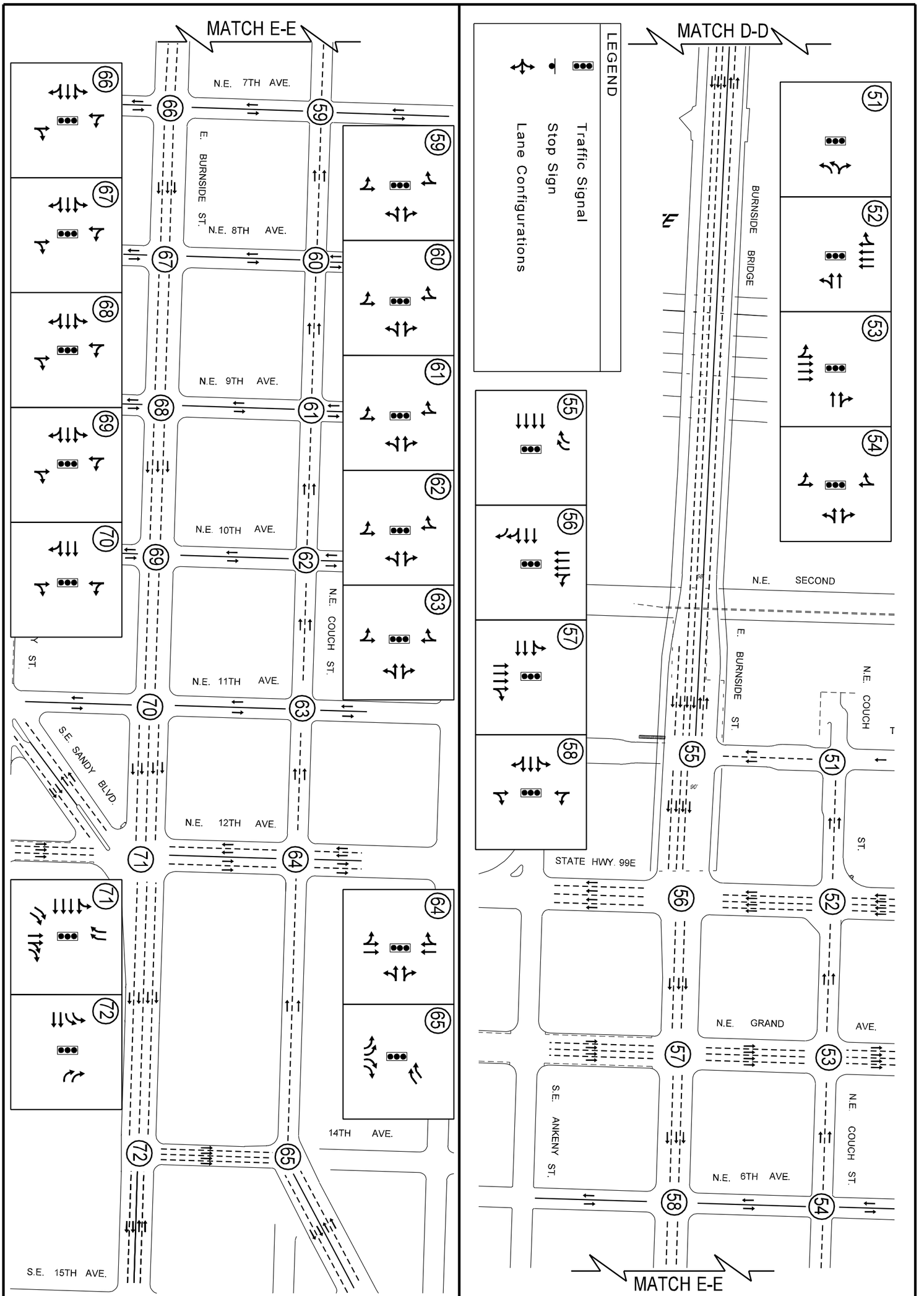


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# FIGURE 6:
# ROADWAY CONFIGURATION and TRAFFIC CONTROL - RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

# FIGURE 7:
# INTERSECTION VOLUMES (PM)
# - RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

LEGEND

- Traffic Signal
- Stop Sign
- Existing PM Peak Hour Turn Movement Volume (e.g. 10 / 1090 / 15)

MATCH A-A

MATCH B-B

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# FIGURE 8:
# INTERSECTION VOLUMES (PM)
# - RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

MATCH B-B

MATCH C-C

N.W. 13TH AVE.

N.W. 12TH AVE.

N.W. 11TH AVE.

N.W. 10TH AVE.

N.W. 9TH AVE.

N.W. PARK AVE.

N.W. 8TH

N.W. BROADWAY

N.W. 6TH AVE.

W. BURNSIDE ST.

S.W. 13TH AVE.

S.W. OAK

N.W. 5TH AVE.

N.W. 4TH AVE.

N.W. 3RD AVE.

N.W. 2ND AVE.

N.W. 1ST

N.W. FRONT

COUCH ST.

W.B. L.R.T.

E.B. L.R.T.

BURNSIDE BRIDGE

S.W. ANKENY ST.

ANKENY

WILLAMETTE

LEGEND

- Traffic Signal
- Stop Sign
- Existing PM Peak Hour Turn Movement Volume

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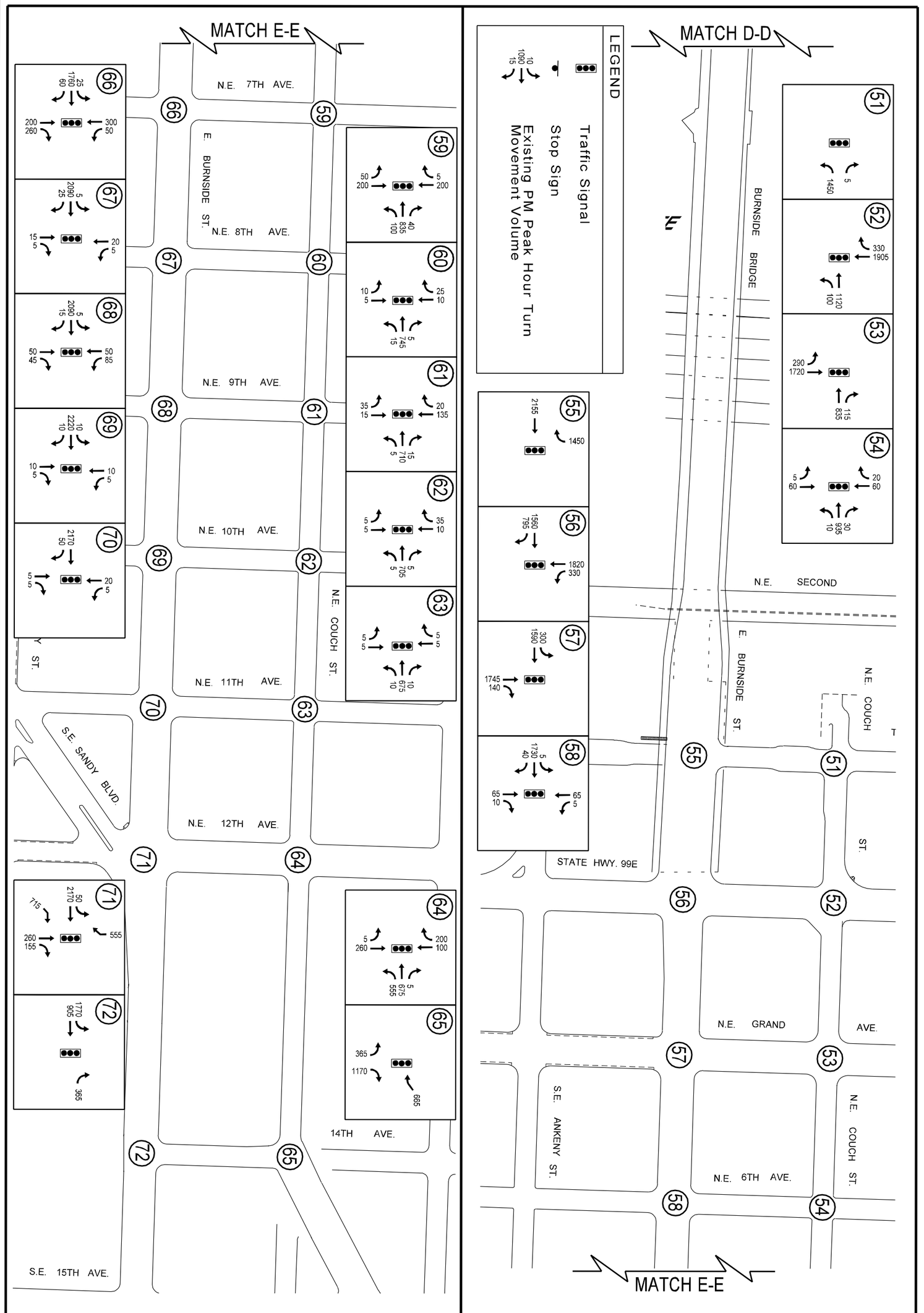


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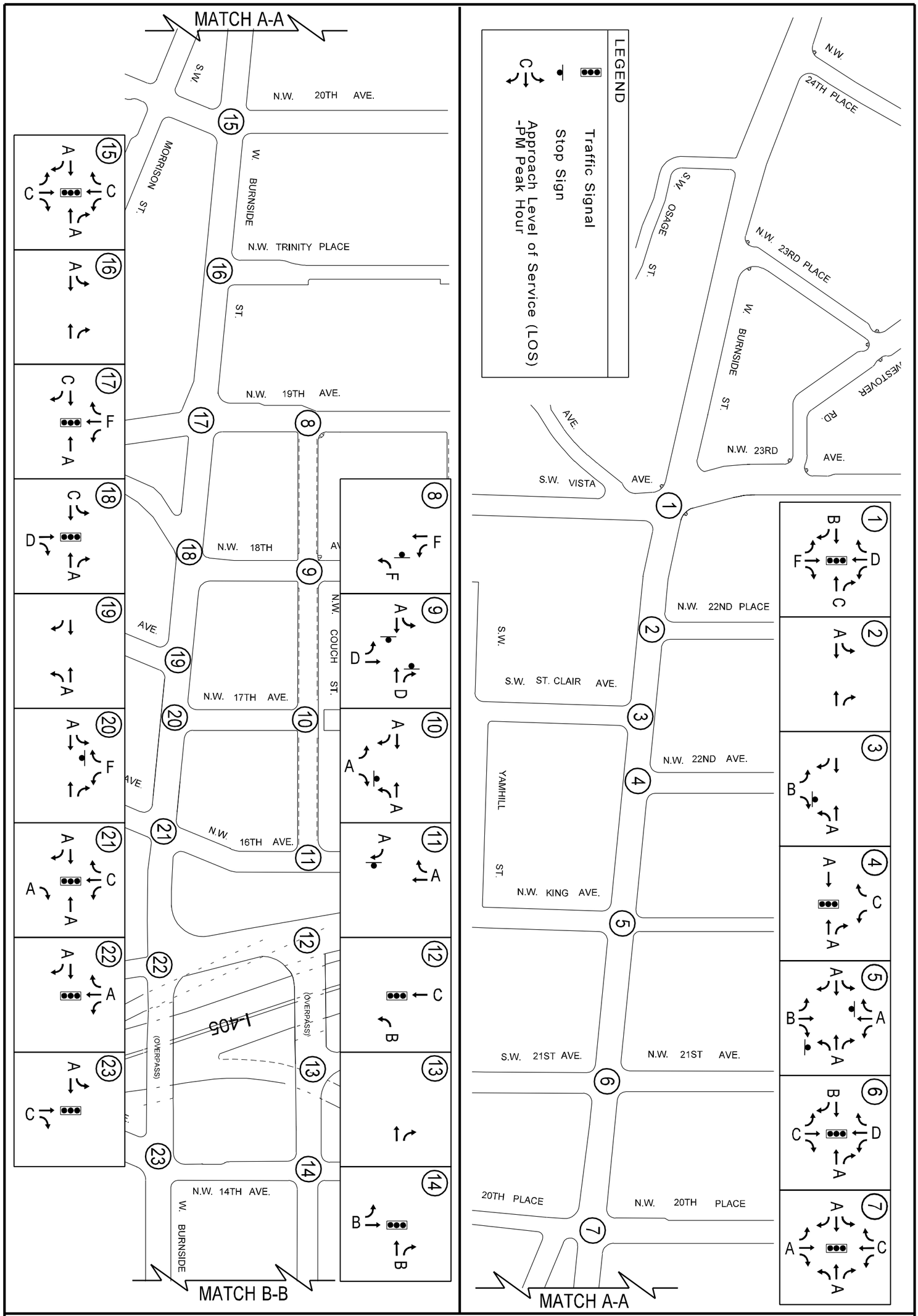
# FIGURE 9: INTERSECTION VOLUMES (PM) - RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

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# FIGURE 10:
# INTERSECTION LOS (PM)
# -RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

# FIGURE 11:
# INTERSECTION LOS (PM)
# -RECOMMENDED ALTERNATIVE

NORTH

SCALE 1 INCH = 150 FEET

LEGEND

- Traffic Signal
- Stop Sign
- C — Approach Level of Service (LOS) -PM Peak Hour

MATCH B-B

MATCH C-C

MATCH C-C

N.W. 13TH AVE.
N.W. 12TH AVE.
N.W. 11TH AVE.
N.W. 10TH AVE.
N.W. 9TH AVE.
N.W. PARK AVE.
N.W. 8TH
N.W. BROADWAY
N.W. 6TH AVE.
N.W. 5TH AVE.
N.W. 4TH AVE.
N.W. 3RD AVE.
N.W. 2ND AVE.
N.W. 1ST
N.W. FRONT

W. BURNSIDE ST.
S.W. OAK
S.W. ANKENY ST.
ANKENY
COUCH ST.
BURNSIDE BRIDGE
WILLAMETTE
WB LRT
EB LRT

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# FIGURE 12:
# INTERSECTION LOS (PM)
# -RECOMMENDED ALTERNATIVE

SCALE 1 INCH = 150 FEET

NORTH

MATCH D-D

MATCH E-E

BURNSIDE BRIDGE

N.E. SECOND

E. BURNSIDE ST.

N.E. COUCH ST.

N.E. GRAND AVE.

N.E. 6TH AVE.

STATE HWY. 99E

S.E. ANKENY ST.

N.E. 7TH AVE.

N.E. 8TH AVE.

N.E. 9TH AVE.

N.E. 10TH AVE.

N.E. 11TH AVE.

N.E. 12TH AVE.

14TH AVE.

S.E. SANDY BLVD.

S.E. 15TH AVE.

## LEGEND

- Traffic Signal
- Stop Sign
- Approach Level of Service (LOS) -PM Peak Hour
- * Subject to backup from downstream queue accumulation. (Synchro)
- ** There is the potential for queue accumulation and degraded LOS later in the hour. Careful analysis and design of Burnside/Couch/MLK/Grand intersections is needed during the design phase. (Synchro)

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**RESOLUTION No.** 36114 **As Amended**

Adopt the Burnside Transportation and Urban Design Plan (Resolution)

WHEREAS, for over a century, Burnside Street has played an important role in Portland's transportation system. As the major east-west route through the city, it touches the Northwest, Pearl, and Downtown districts, the Old Town-China Town, Goose Hollow, Kerns and Buckman neighborhoods, the Central Eastside Industrial District, and provides access for residents, employees and visitors to the downtown business attractions and central east side; and

WHEREAS, much of the street and many of the sidewalks on Burnside are failing or are in poor condition and need reconstruction or repair. This is the time, prior to maintenance and construction expenditures, to plan how the street should serve the community in years to come; and

WHEREAS, the project study area includes Burnside Street from 24th on the west side to 15th and Sandy on the east side. It also reaches one half block north of Couch and one block south of Ankeny on both sides of the river; and

WHEREAS, the plan's recommendations respond to the diverse needs of the street and its surrounding neighborhoods, identify functional and aesthetic improvements to the right-of-way, and establish a blueprint for public and private investment. The plan presents a vision for Burnside that integrates it more fully into downtown Portland and creates a street that connects, instead of divides, the districts and neighborhoods to the north and south on both sides of the river; and

WHEREAS, this planning process provided a forum to bring together interested stakeholders to discuss and participate in crafting a comprehensive, long-term vision for Burnside. A Stakeholder Advisory Committee, representing the affected neighborhoods, business associations, business and property owners, social service agencies and community members was formed to guide the planning process; and

WHEREAS, based on analysis and community input, the Stakeholder Advisory Committee made its final plan recommendations in September 2002. This recommendation was reviewed by a Technical Advisory Committee comprised of representatives from Bureaus of Environmental Services, Parks and Recreation, Planning, Portland Office of Transportation, Urban Forestry Commission, Portland Development Commission, TriMet and Oregon Department of Transportation; and,

WHEREAS, based on the input from both groups, the project team produced the final plan recommendations submitted with this resolution.

NOW THEREFORE, BE IT RESOLVED, that the City of Portland recommends adoption of the Burnside Transportation and Urban Design Plan.

**Adopted by the Council,** DEC 11 2002

Commissioner Jim Francesconi
Bill Hoffman :slg
December 3, 2002

**GARY BLACKMER**
AUDITOR OF THE CITY OF PORTLAND
BY Susan Parsons
DEPUTY

# APPENDIX 2 ACCEPTED RESOLUTION